

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

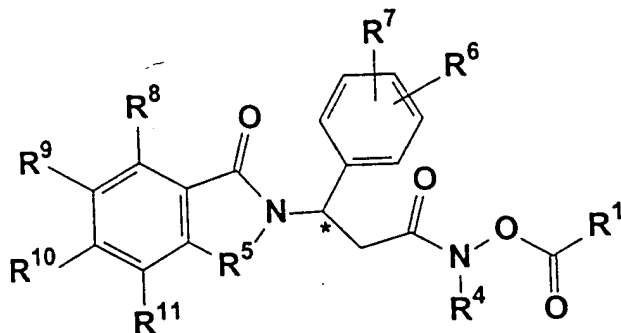
- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

We claim:

1. An acylhydroxamic acid derivative selected from the group consisting of  
(a) compounds of the formula:



wherein

the carbon atom designated \* constitutes a center of chirality,

$R^4$  is hydrogen or  $-(C=O)-R^{12}$ ;

each of  $R^1$  and  $R^{12}$ , independently of each other, is alkyl of 1 to 6 carbon atoms, phenyl, benzyl, pyridyl methyl, pyridyl, imidazolyl, imidazolyl methyl, or  $CHR^*(CH_2)_nNR^0$

wherein  $R^*$  and  $R^0$ , independently of the other, are hydrogen, alkyl of 1 to 6 carbon atoms, phenyl, benzyl, pyridylmethyl, pyridyl, imidazolyl or imidazolylmethyl, and  $n = 0, 1, 2$ ;

$R^5$  is  $C=O$ ,  $CH_2$ ,  $CH_2-CO-$ , or  $SO_2$ ;

each of  $R^6$  and  $R^7$ , independently of the other, is nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, carbamoyl, acetoxyl, carboxyl, hydroxy, amino, alkyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, cycloalkoxy of 3 to 8 carbon atoms, halo, bicycloalkyl of up to 18 carbon atoms, tricycloalkoxy of up to 18 carbon atoms, 1-indanyloxy, 2-indanyloxy,  $C_4-C_8$ -cycloalkylidenemethyl, or  $C_3-C_{10}$ -alkylidenemethyl;

each of  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$ , independently of the others, is

(i) hydrogen, nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy,

carbopropoxy, acetyl, carbamoyl, acetoxo, carboxy, hydroxy, amino,

alkylamino, dialkylamino, acylamino, alkyl of 1 to 10 carbon atoms, alkoxy of 1

to 10 carbon atoms, halo, or

(ii) one of  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  is acylamino comprising a lower alkyl, and the

remaining of  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  are hydrogen, or

(iii) hydrogen if  $R^8$  and  $R^9$  taken together are benzo, quinoline, quinoxaline,

benzimidazole, benzodioxole, 2-hydroxybenzimidazole,

methylenedioxy, dialkoxy, or dialkyl, or

(iv) hydrogen if  $R^{10}$  and  $R^{11}$ , taken together are benzo, quinoline, quinoxaline,

benzimidazole, benzodioxole, 2-hydroxybenzimidazole,

methylenedioxy, dialkoxy, or dialkyl, or

(v) hydrogen if  $R^9$  and  $R^{10}$  taken together are benzo; and

(b) The acid addition salts of said compounds which contain a nitrogen atom

capable of being protonated.

2. An acylhydroxamic acid derivative according to claim 1 wherein each of  $R^8$ ,  $R^9$ ,

$R^{10}$ , and  $R^{11}$  is hydrogen, halo, alkyl of 1 to 4 carbon atoms, or alkoxy of 1 to 4

carbon atoms.

3. An acylhydroxamic acid derivative according to claim 1 wherein one of  $R^8$ ,  $R^9$ ,

$R^{10}$ , and  $R^{11}$  is amino, alkyl amino, dialkyl amino, or acyl amino, alkyl of 1 to 10

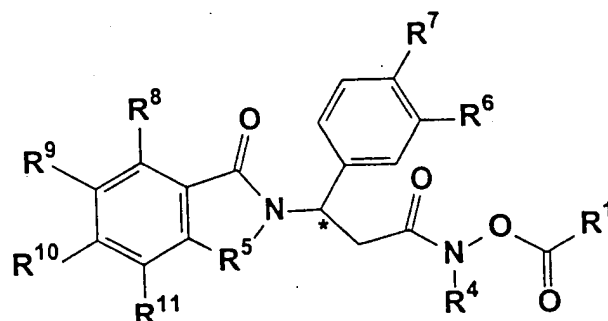
carbon atoms, alkoxy of 1 to 10 carbon atoms, or hydroxy, and the remaining of

$R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  are hydrogen.

4. An acylhydroxamic acid derivative according to claim 1 wherein  $R^8$ ,  $R^9$ ,  $R^{10}$ , and

$R^{11}$  are hydrogen.

5. An acylhydroxamic acid derivative according to claim 1 wherein said compound has the formula:



in which

the carbon atom designated \* constitutes a center of chirality;

R<sup>4</sup> is hydrogen or  $-(C=O)-R^{12}$ , where

each of R<sup>1</sup> and R<sup>12</sup>, independently of each other, is alkyl of 1 to 6 carbon atoms, phenyl, benzyl, pyridyl, pyridyl methyl, imidazolyl, imidazoylemethyl, or  $CHR^*(CH_2)_nNR^*R^0$

wherein R\* and R<sup>0</sup>, independently of the other, are hydrogen, alkyl of 1 to 6 carbon atoms, phenyl, benzyl, pyridylemethyl, pyridyl, imidazolyl or imidazoylemethyl, and n = 0, 1, 2;

R<sup>5</sup> is C=O or CH<sub>2</sub>;

each of R<sup>6</sup> and R<sup>7</sup>, independently of the other is alkoxy of 1 to 8 carbon atoms, cycloalkoxy of 3 to 6 carbon atoms; C<sub>4</sub>-C<sub>6</sub>-cycloalkylidenemethyl, C<sub>2</sub>-C<sub>10</sub>-alkylidenemethyl, C<sub>6</sub>-C<sub>18</sub>-bicycloalkoxy, C<sub>6</sub>-C<sub>18</sub>-tricycloalkoxy, 1-indanyloxy, or 2-indanyloxy; and

each of R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup>, and R<sup>11</sup>, independently of the others, is hydrogen, nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, halo, carbamoyl, acetoxy, carboxy, hydroxy, amino, alkylamino, dialkylamino, acylamino, alkyl of 1 to 10 carbon atoms, and alkoxy of 1 to 10 carbon atoms

- 1 6. An acylhydroxamic acid derivative according to claim 5, wherein  
2 each of  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$ , independently of the others, is  
3 hydrogen, alkyl of 1 to 4 carbon atoms, halo, or alkoxy of 1 to 4 carbon atoms.
- 4 7. An acylhydroxamic acid derivative according to claim 5 wherein one of  $R^8$ ,  $R^9$ ,  
5  $R^{10}$ , and  $R^{11}$  is acylamino, amino, hydroxy, alkyl of 1 to 10 carbon atoms, and  
6 the remaining of  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$ , are hydrogen.
- 7 8. An acylhydroxamic acid derivative according to claim 5, wherein  
8  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  are  
9 (a) at least one alkyl of 1 to 10 carbon atoms with the remainder of  $R^8$ ,  $R^9$ ,  
10  $R^{10}$ , and  $R^{11}$  being hydrogen, or  
11 (b) at least one alkoxy of 1 to 10 carbon atoms with the remainder  
12 of  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  being hydrogen.
- 13 9. An acylhydroxamic acid derivative according to claim 5 wherein  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  
14  $R^{11}$  are hydrogen.
- 15 10. An acylhydroxamic acid derivative according to claim 5 wherein one of  $R^8$ ,  $R^9$ ,  
16  $R^{10}$ , and  $R^{11}$  is acylamino and the remaining of  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$  are  
17 hydrogen.
- 18 11. An acylhydroxamic acid derivative according to claim 5 wherein two of  $R^8$ ,  $R^9$ ,  
19  $R^{10}$ , and  $R^{11}$  are hydrogen and the remaining of  $R^8$ ,  $R^9$ ,  $R^{10}$ , and  $R^{11}$ ,  
20 independent of each other, are alkyl of 1 to 10 carbon atoms, alkoxy of 1 to 10  
21 carbon atoms, amino, or acylamino.
- 22 12. An acylhydroxamic acid derivative according to claim 5 wherein  $R^4$  is hydrogen.
- 23 13. An acylhydroxamic acid derivative according to claim 5 wherein  $R^4$  is  
24  $-(C=O)-R^{12}$ , and where  $R^{12}$  is a lower alkyl of 1 to 6 carbon atoms.

- 1 14. An acylhydroxamic acid derivative according to claim 5, wherein  
2 R<sup>4</sup> is hydrogen;  
3 R<sup>5</sup> is C=O;  
4 R<sup>8</sup> is hydrogen; and  
5 one of R<sup>9</sup> and R<sup>11</sup> is hydrogen and the other of R<sup>9</sup> and R<sup>11</sup>, taken together with  
6 R<sup>10</sup>, is benzo.
- 7 15. An acylhydroxamic acid derivative according to claim 5, wherein  
8 R<sup>4</sup> is hydrogen;  
9 R<sup>5</sup> is C=O;  
10 R<sup>8</sup> and R<sup>9</sup> are hydrogen; and  
11 R<sup>10</sup> and R<sup>11</sup>, taken together, are methylenedioxy or dialkoxyl.
- 12 16. An acylhydroxamic acid derivative according to claim 5, wherein  
13 R<sup>7</sup> is methoxy; and  
14 R<sup>6</sup> is ethoxy, cyclopentoxy, or isopropoxy.
- 15 17. An acylhydroxamic acid derivative according to claim 5 wherein R<sup>6</sup> and R<sup>7</sup> are  
16 independently of each other, alkoxy or 1 to 10 carbon atoms, cycloalkoxy, or  
17 bicycloalkoxy.
- 18 18. An acylhydroxamic acid derivative according to claim 1, which is a substantially  
19 chirally pure (R)-isomer, a substantially chirally pure (S)-isomer, or a mixture  
20 thereof.
- 21 19. A pharmaceutical composition comprising a quantity of an acylhydroxamic acid  
22 derivative according to claim 1, which derivative is a substantially chirally pure  
23 (R) -isomer, a substantially chirally pure (S)-isomer, or a mixture thereof,

1 sufficient upon administration in a single or multiple dose regimen to reduce or  
2 inhibit levels of TNF $\alpha$  or in a mammal in combination with a carrier.

3 20. A pharmaceutical composition comprising a quantity of an acylhydroxamic acid  
4 derivative according to claim 1, which derivative is a substantially chirally pure  
5 (R)-isomer, a substantially chirally pure (S)-isomer, or a mixture thereof, sufficient  
6 upon administration in a single or multiple dose regimen to inhibit undesirable  
7 levels of at least one of matrix metalloproteinases and PDE 4 in a mammal in  
8 combination with a carrier.

9 21. A method of inhibiting undesirable levels of TNF $\alpha$  in a mammal which comprises  
10 administering thereto an effective amount of an acylhydroxamic acid derivative  
11 according to claim 1, which derivative is a substantially chirally pure (R)-isomer, a  
12 substantially chirally pure (S)-isomer, or a mixture thereof.

13 22. A method of inhibiting undesirable levels of matrix metalloproteinases in a  
14 mammal which comprises administering thereto an effective amount of an  
15 acylhydroxamic acid derivative according to claim 1, which derivative is a  
16 substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer, or a  
17 mixture thereof.

18 23. A method of treating in a mammal a disease selected from the group consisting of  
19 inflammatory disease and autoimmune disease, which comprises administering  
20 thereto an effective amount of a compound according to claim 1, which compound  
21 is a substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer,  
22 or a mixture thereof.

23 24. A method according to claim 23 wherein the disease is at least one member  
24 selected from the group of arthritis, rheumatoid arthritis, inflammatory bowel

- 1 disease, Crohn's disease, aphthous ulcers, cachexia, graft versus host disease,  
2 asthma, COPD, psoriasis, atopic dermatitis, Lupus, adult respiratory distress  
3 syndrome, and acquired immune deficiency syndrome.
- 4 25. A method of treating cancer in a mammal which comprises administering thereto  
5 an effective amount of a compound according to claim 1, which compound is a  
6 substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer, or a  
7 mixture thereof.
- 8 26. A method of treating undesirable angiogenesis in a mammal which comprises  
9 administering thereto an effective amount of a compound according to claim 1,  
10 which compound is a substantially chirally pure (R)-isomer, a substantially chirally  
11 pure (S)-isomer, or a mixture thereof.
- 12 27. A method of inhibiting phosphodiesterases type IV or PDE 4 in a mammal which  
13 comprises administering thereto an effective amount of an acylhydroxamic acid  
14 derivative according to claim 1, which derivative is a substantially chirally pure  
15 (R)-isomer, a substantially chirally pure (S)-isomer, or a mixture thereof.
- 16 28. An acylhydroxamic acid derivative according to claim 1, wherein the compound is  
17 selected from the group consisting of a substantially chirally pure (R)-isomer, a  
18 substantially chirally pure (S)-isomer, or a mixture thereof, where the isomer is (3-  
19 (1,3-dioxoisindolin-2-yl)-3-(3-ethoxy-4-methoxyphenyl)propanoylamino)  
20 propanoate; (3-(1,3-dioxoisindolin-2-yl)-3-(3-ethoxy-4-methoxyphenyl)  
21 propanoylamino) acetate; (3-(1,3-dioxoisindolin-2-yl)-3-(3-ethoxy-4-methoxy  
22 phenyl)propanoylamino) pentanoate; (3-(1,3-dioxoisindolin-2-yl)-3-(3-ethoxy-4-  
23 methoxyphenyl)propanoylamino) benzoate; (3-(3-cyclopentyloxy-4-methoxy  
24 phenyl)-3-(1-oxoisindolin-2-yl)propanoylamino) acetate; (3-[4-(acetylamino)-1,3-



dioxoisindolin-2-yl]-3-(3-ethoxy-4-methoxyphenyl) propanoylamino) acetate; (3-(3-ethoxy-4-methoxyphenyl)-3-(4-methyl-1,3-dioxoisindolin-2-yl)propanoyl amino) acetate; (3-(3-ethoxy-4-methoxyphenyl)-3-(5-methyl-1,3-dioxoisindolin-2-yl)propanoylamino) acetate; (3-(3-cyclopentyloxy-4-methoxyphenyl)-3-(4-methyl-1,3-dioxoisindolin-2-yl)propanoylamino) acetate; (3-(3-cyclopentyloxy-4-methoxyphenyl)-3-(5-methyl-1,3-dioxoisindolin-2-yl)propanoylamino) acetate; -N-acetyl-3-(3-ethoxy-4-methoxyphenyl)-3-(5-methyl-1,3-dioxoisindolin-2-yl)propanoylamino) acetate; N-acetyl-3-(3-cyclopentyloxy-4-methoxyphenyl)-3-(4-methyl-1,3-dioxoisindolin-2-yl)propanoylamino) acetate; (3-[5-(acetylamino)-1,3-dioxoisindolin-2-yl]-3-(3-ethoxy-4-methoxyphenyl)propanoylamino) acetate; (3-(1,3-dioxobenzo[e] isindolin-2-yl)-3-(3-ethoxy-4-methoxyphenyl) propanoylamino) acetate; (3-(3-ethoxy-4-methoxyphenyl)-3-phthalimido-propanoylamino) pyridine-3-carboxylate; (3-[4-(acetylamino)-1,3-dioxoisindolin-2-yl]-3-(3-cyclopentyloxy-4-methoxyphenyl)propanoylamino) acetate; (N-acetyl-3-[4-(acetylamino)-1,3-dioxoisindolin-2-yl]-3-(3-cyclopentyloxy-4-methoxyphenyl)propanoylamino) acetate; or (3-(3-ethoxy-4-methoxyphenyl)-3-(1-oxoisindolin-2-yl)propanoylamino) acetate.

29. An acylhydroxamic acid derivative according to claim 5, which is a substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer, or a mixture thereof.

30. A pharmaceutical composition comprising a quantity of an acylhydroxamic acid derivative according to claim 5, which derivative is a substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer, or a mixture thereof, sufficient upon administration in a single or multiple dose regimen to reduce or inhibit levels of TNF $\alpha$  in a mammal in combination with a carrier.

- 1 31. A pharmaceutical composition comprising a quantity of an acylhydroxamic acid  
2 derivative according to claim 5, which derivative is a substantially chirally pure  
3 (R)-isomer, a substantially chirally pure (S)-isomer, or a mixture thereof, sufficient  
4 upon administration in a single or multiple dose regimen to inhibit undesirable  
5 levels of matrix metalloproteinases or PDE 4 in a mammal in combination with a  
6 carrier.
- 7 32. A method of reducing or inhibiting undesirable levels of TNF $\alpha$  in a mammal which  
8 comprises administering thereto an effective amount of an acylhydroxamic acid  
9 derivative according to claim 5, which derivative is a substantially chirally pure  
10 (R)-isomer, a substantially chirally pure (S)-isomer, or a mixture thereof.
- 11 33. A method of inhibiting undesirable levels of matrix metalloproteinases in a  
12 mammal which comprises administering thereto an effective amount of an  
13 acylhydroxamic acid derivative according to claim 5, which derivative is a  
14 substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer, or a  
15 mixture thereof.
- 16 34. A method of treating in a mammal a disease selected from the group consisting of  
17 inflammatory disease and autoimmune disease, which comprises administering  
18 thereto an effective amount of a compound according to claim 5, which compound  
19 is a substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer,  
20 or a mixture thereof.
- 21 35. A method according to claim 34, wherein the disease is at least one member  
22 selected from the group consisting of arthritis, rheumatoid arthritis, inflammatory  
23 bowel disease, Crohn's disease, aphthous ulcers, cachexia, graft versus host

- 1 disease, asthma, COPD, psoriasis, stopic dermatitis, Lupus, adult respiratory  
2 distress syndrome, and acquired immune deficiency syndrome
- 3 36. A method of treating cancer in a mammal which comprises administering thereto  
4 an effective amount of a compound according to claim 5, which compound is a  
5 substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer, or a  
6 mixture thereof.
- 7 37. A method of treating undesirable angiogenesis in a mammal which comprises  
8 administering thereto an effective amount of a compound according to claim 5,  
9 which compound is a substantially chirally pure (R)-isomer, a substantially chirally  
10 pure (S)-isomer, or a mixture thereof.
- 11 38. A method of inhibiting undesirable levels of phosphodiesterase type IV in a  
12 mammal which comprises administering thereto an effective amount of an  
13 acylhydroxamic acid derivative according to claim 5, which derivative is a  
14 substantially chirally pure (R)-isomer, a substantially chirally pure (S)-isomer, or a  
15 mixture thereof.
- 16 39. A method of treating dermal diseases in a mammal which comprises  
17 administering thereto an effective amount of an acylhydroxamic acid derivative  
18 according to claim 5, which derivative is a substantially chirally pure (R)-isomer, a  
19 substantially chirally pure (S)-isomer, or a mixture thereof.
- 20 40. An acylhydroxamic acid derivative according to claim 10 wherein acyl contains a  
21 carbonyl group and alkyl of 1 to 6 carbon atoms, phenyl, benzyl, pyridylmethyl,  
22 pyridyl, imidazolyl, imidazolylmethyl, or  $\text{CHR}^*(\text{CH}_2)_n\text{NR}^*\text{R}^0$ , wherein  $\text{R}^*$  and  $\text{R}^0$ ,  
23 independently of the other, are hydrogen, alkyl of 1 to 6 carbon atoms, phenyl,

- 
- 1 benzyl, pyridylmethyl, pyridyl, imidazolyl or imidazolylmethyl,
  - 2 and  $n = 0, 1, 2$ .